Site specific phase center maps for GPS stations

Ken Hurst, Yoaz BarSever
Jet Propulsion Laboratory

It is well known that effective GPS antenna phase centers vary with elevation and azimuth of the received signal. Several recent studies have shown evidence that the effective phase center map for a given antenna is influenced by the surrounding environment.

We are using precise point positioning methods in the GIPSY/OASIS II software to generate in-situ phase center maps for individual GPS stations by binning many days of postfit phase residuals as a function of elevation and azimuth. We then analyze independent GPS data both with and without the new phase center maps to assess the impact of the new maps.

With this approach, multipath from sources whose geometry remains fixed can be incorporated into the phase center maps, reducing its effect on the solution for the station position. This may improve the signal to noise ratio in GPS data, particularly for shorter data spans, providing improved sensitivity to small crustal motions.

Form:626332962
PIN: 3055